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New Actinide Targets for Rare Isotope Beam Generation ANDREAS KRONENBERG, H.K. CARTER, E.H. SPEJEWSKI, Oak Ridge Associated Universities, Oak Ridge, TN 37831, D.W. STRACENER, Oak Ridge National Laboratory, Oak Ridge, TN, 37831, B. CHAN, P. DORHOUT, Colorado State University, Fort Collins, CO 80523 — Development of high-quality ion beams of short-lived isotopes is crucial for modern nuclear structure and nuclear astrophysics. The talk will focus on the development of targets for the production and release of neutron-rich isotopes, which are produced via fission of actinides. So far, only uranium carbide is widely used as a target, which has been produced and tested in various geometries with densities between 0.6 g/cm^3 and 6.0 g/cm^3 . New compounds, such as thorium oxide, uranium boride (UB_2 , UB_4 and UB_{12}) will be discussed and recent results presented. Thorium has a higher fission yield for certain isotopes in the mass region $A=80$ to 90 and the borides are of interest for a better understanding of the release process after the nuclear reaction. A comparison can be made between the release efficiency of UB_2 , which has an alloy-type structure, and UB_{12} , which is of rock-salt type. The results from such high-temperature actinide compounds may be of interest for research on space reactor (nuclear thermal propulsion) design, as well as spent fuel storage. This research was sponsored by the NNSA under Stewardship Science Academic Alliance program through DOE Cooperative Agreement # DE-FC03-3NA00143.

Andreas Kronenberg
Oak Ridge Associated Universities

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